

GENERAL INFORMATION/ OSCAR-10

The Phase III OSCAR 10 satellite is a semi-synchronous satellite providing approximately 8 hours of operation per day. During most of this time, the satellite appears to occupy essentially the same point in the sky. At one time or another, it should be possible to work stations in all but a few countries (3W, XU, 9V1, VK6, VK9L, VK9X) from the Washington D.C. area. In the 16 months since the satellite became operational, over 100 countries have been active. You may recognize some of these calls: W1BIH, N2AA, W2BXA, N4AR, W8AH, K9RF, K7SS, N6RJ, W6KH, KV4FZ, TI1NA, KH6IJ, YJ8RG, HZ1AB, UL7DD, JA1CG, JA1KSO, JA2YKA, JA7YAA, CE3OK, OZ1LO, F9LT, DJ6RX, YO2IS, YO9CN.

OSCAR 10 actually consists of two repeaters: Mode B (70 cm up, 2 meters down) and Mode L (23 cm up, 70 cm down). Mode L is not very effective on this satellite and will not be mentioned further. Mode B uses a downlink from 145.83 to 145.97 with a telemetry/information beacon at 145.81. The uplink is from 435.030 to 435.170. The repeater inverts signals so, by convention, you use LSB on the uplink and USB on the downlink. To operate Mode B, you need about 20 watts at the antenna and about 10 dBd gain right-hand circularly polarized on 70 cm. For the downlink, you need a SSB/CW receiver, preferably with a noise figure better than 1 dB and an antenna gain of about 10 dBd right hand circularly polarized.

Cooperation is important on the satellite. Since a finite amount of power is available, limiters are used in the repeater so that no signal will be repeated at a level much greater than the signal from the beacon. Ideally you should adjust your signal so that it is no louder than the beacon or even less. Since you can hear your own signal (full duplex), this is simple to do.

If you decide to enter this interesting aspect of amateur radio, remember that these satellites would not be possible without AMSAT, the amateur satellite group in this country. Further information concerning satellite operation and membership in this worthwhile organization can be gotten by writing:

AMSAT
P.O. Box 27
Washington, D.C. 20044

or calling the local AMSAT office in Silver Spring at (301) 589-6062. AMSAT operates a repeater located at Goddard/NASA on 146.235/146.835.

STATION HARDWARE FOR OSCAR 10

TRANSMIT/RECEIVE

- ### 1. Converter (CONV)/ Transverter (XVTR)

* CONV- Microwave Modules

* XVTR- Microwave Modules

* COMBO- TenTec 2510

Additional requirements: Separate 28 MHz transmitter and receiver (a single transceiver will not do- you would need two transceivers), each capable of tuning 29.8-30.0 MHz. Transmitter capable of providing 10-500 mW either directly or via a resistive pad.

- ## 2. Transceiver (XCVR) / Transceiver

* mobile/ fixed station

* Icom/ Kenwood/ Yaesu

- ### 3. Stand alone units

* Yaesu FT 726R with 70 cm module and satellite board

NOTE. The Kenwood TS-780 transceives on both 144 and 435 MHz but is not full duplex and thus cannot be used alone.

70 CM AMPLIFIERS: Mirage, Tokyo HyPower,

2 M PREAMPLIFIERS

* Advanced Receiver Research P144VDG

* Lunar, Mutek, Microwave Modules, Tokyo HyPower

NOTES. Mount at the antenna, if possible for maximum performance.

If using a transceiver, disable the transmitter if you can - GaSFETs do not like RF one bit!

POWER SUPPLIES: Astron (available in 12, 20 and 35 amp models)

ANTENNAS

* Cushcraft AOP-1 2 M 10 el crossed yagi (Model 20T)
70 CM 8 el crossed yagi (Model 16TB)

* KLM 2 M 7 el crossed yagi (Model 14C)
or 2 M 11 el crossed yagi (Model 2M22)
and 70 CM 9 el crossed yagi (Model 18C)

TRANSMISSION LINE: Belden 9913

ROTATORS:

* Elevation: Alliance U100 or U110

* Azimuth: any decent TV rotator

EQUIPMENT SOURCES

* EEB Vienna, VA 938-3350

* EGE Woodbridge, VA 643-1063

* Norm's Rotor Service Laytonsville, MD 840-2133

* Advanced Receiver Research P.O. Box 1242 Burlington CT 06013
(203) 582-9409

* The VHF Shop Mountaintop, PA (717) 474-9399.